



# Nutech Paint

For a perfect finish!

## **Nutech Roof Coatings & Sealers**

### **Technical & Application Guidelines**

**Guidelines for product selection, surface preparation and application;**

- **The different type of roof materials & surfaces**
- **Nutech primers sealers and top coats including, Supa-Prime, Nuprime, GP Primer, Master Sealer, Asbestos Sealer, Metal Primer Flexible Membrane and Elite Terracotta Primer. SmartCoat, Nuflex®, Tileflex®, NXT Cool Zone®, Terra Glaze & Aqua Stop Silicon Sealer**
- **Associated roof restoration products including Hypo, Wet & Forget, Maxi-Point, Nu-Bond pointing admixture & Pointing Bucket Boots**
- **Application instructions, hints, equipment & hazards**
- **NXT Application & Guidelines**

# Nutech Roof Coatings – Technical Guide

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## 1.0 Why Roofs Need Restoring

The unavoidable fact is that all roofs become dirty and deteriorate after 10 years or more. Cement tiles lose their Colour and gloss, terra cotta tiles become dirty and covered with moss, and asbestos sheet roofs erode and allow dangerous fibers into the environment. Cement sheet roofs get dirty quickly and the sheets become brittle. Metal sheet roofing discolours, grows moss and rusts.

Eventually all roofs leak due to broken tiles, biological growth including moss, mould, fungus and lichen growth pointing and bedding, storm damage, ultra violet light damage, loose screws and fixing points, gutter damage, natural weathering and mechanical damage due to frost, freeze thaw thermal effects and due to inexperienced people walking on the roof. This has the potential to cause structural damage and unsightly interior staining of plaster walls and ceilings.

The original coating on all cement tiles suffers from a chemical breakdown due to weathering and atmospheric and local pollution. This causes the tile surface to degrade and become unattractive due to discoloration, fading, oxidization and crazing of the surface glaze and coloured cement slurry.

After many years the coating on a cement tile can be completely weathered away leaving no original colour and the exposed cement substrate of the tile. On older handmade tiles, the concrete surface can be substantially damaged after many years of weathering, resulting in leakage and water absorption, ultimately requiring replacement.

Terra cotta tile become covered in moss and lichen, completely changing the appearance of the roof. Moisture and salt damage can structurally weaken terra cotta tiles, especially in coastal and high elevation regions. These factors can structurally damage tiles over periods as short as 20 years requiring total replacement.

Mould, moss, lichen and dirt build up also cause blockages in water channels on the tiles. This causes water leaks resulting in ceiling or structural damage if left unchecked.

Although newer machine manufactured cement tiles should not leak even after the coloured surface weathers away, the resulting dirty grey appearance caused by colour loss, lichen and moss growth, dirt and pollution build-up always results in a very unsatisfactory visual appearance.

Householders spend hundreds of dollars annually on maintenance to improve the appearance of their homes. Therefore, as roofs age beyond about ten years it is becoming increasingly popular to restore the appearance by applying a protective coating for both aesthetic and structural reasons.

In summary the functional, economic and aesthetic value of any roof can be extended indefinitely if the roof is kept in good repair and the correct coating is applied and maintained.

Therefore, roof restoration has become a very popular practice over the past 35-45 years.

## 2.0 Why the Best Companies use Nutech Roof Coatings

Nutech Paint Pty Ltd is recognised as Australia's largest roof coating manufacturer with over 45 years specialised experience.

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Nutech manufactures more roof coatings than any other Company in Australasia and has supplied the coating successfully to restore more than 1,000,000 roofs in Australia, New Zealand, UK, USA and Asia.

Nutech roof coatings are used and recommended by professional restoration companies, roof tile manufacturers, painters, builders and homeowners throughout Australia and overseas. The main reason is that Nutech roof coatings are regarded as technically advanced and of superior quality.

As a manufacturer Nutech guarantees the durability and performance of all roofing products. Nutech has extensive experience in the application and manufacture of a wide range of roof restoration products including the following;

1. Primers and Sealers for concrete and terra cotta roof tiles and asbestos, metal and galvanised sheet, roofing and concrete slabs including;
  - **Supa-prime** Superior penetrative primer for powdery oxidised tiles
  - **Nuprime** Penetrative primer for powdery oxidised tiles
  - **Master Sealer** 100% Acrylic sealer for rough porous tiles
  - **Metal Primer** Acrylic anti-corrosion sheet metal primer
  - **GP Primer** Light grey acrylic high build general purpose tile undercoat
  - **Aqua Stop Silicon Sealer** Water proofing treatment for cementitious and terra roof structures
  - **Asbestos Sealer** Designed to seal the surface of new and weathered Asbestos
  - **Elite Terracotta Primer** Water based Terracotta primer with adhesion enhancing properties.
2. Durable, waterproof and attractive top coat systems including;
  - **SmartCoat** 100% Acrylic coating - 6-year guarantee
  - **Nuflex®** 100% Acrylic coating - 8-year guarantee
  - **Tileflex®** 100% Acrylic coating - 10-year guarantee enhanced with Surface Cleaning Nano-Technology for superior performance
  - **NXT Cool Zone®** 100% Acrylic coating – 12-year guarantee (Heat Reflective coating with thermal protection technology®)
3. Flexible Elastomeric **Acrylic Waterproof Membranes** and **Decratex** texture coatings
4. Roof cleaning and surface preparation products including **Hypo** and **Wet & Forget** moss and lichen treatments and **Rust Convertor** rust treatment
  - **Nu-Bond** liquid additive to improve the strength, flexibility and adhesion of cement pointing and bedding
  - **Terra-Glaze** - Terracotta tile glaze coating for unglazed or semi-glazed porous Terracotta roof tiles.

Nutech is committed to customer service and satisfaction. Application training and research and development of new products has always been a top priority. Product quality and performance is continually monitored during manufacturing and additional product testing and evaluation is undertaken regularly by independent companies including the C.S.I.R.O.

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Over the past forty-five years Nutech has also developed a wide range of other protective coatings including concrete and masonry coatings, interior and exterior house paints, render and texture coatings, waterproofing membranes, sport surface coatings, domestic and industrial floor coatings.

## **3.0 How to Restore a Roof**

There are two important stages in roof restoration;

1. Preparation involving cleaning and basic repairs
2. Correct coating selection and application

These stages are fully detailed below;

### **3.1 Stage 1 - Preparation**

#### **3.1.1 Basic Repairs**

On a tiled roof remove all broken tiles which may cause the roof to leak during cleaning. Chipped tiles with small corners broken or missing may be repaired and or placed in the bottom row above the gutter. Repair and replace fixing and flashing as required.

Check that metal, cement and asbestos sheeting is fixed soundly and that the sheeting is not cracked. Repair and replace fixing, sheets and flashing as required

#### **3.1.2 Moss & Lichen Treatment**

It is essential that the roof surface is cleaned properly before coating. On a roof badly affected by mould, moss or lichen the application of Nutech **Hypo Roof Cleaner** is recommended.

On very badly affected cement or terra cotta tiles saturate the surface with Hypo at approximately one litre per five square metres using a knapsack sprayer, watering can or chemical spray applicator. On surfaces, less affected dilute the Hypo 1:1 with water prior to application.

**Warning:** Hypo is a powerful Chlorine type bleach. Contact with skin and eyes must be avoided. Wash any contaminated clothing or skin immediately with copious amounts of water. Avoid breathing vapors. Seek immediate medical attention if swallowed. Refer to the Nutech Safety Data Sheet for more information.

To avoid using a strong chemical cleaner Nutech recommends using **Wet & Forget/Nu-EcoSafe MossRid which** is a natural blend of Pine extracts. Dilute as recommended and apply a saturated coat over the affected area.

**Wet & Forget/Nu-EcoSafe MossRid can** be left on the roof for several hours or overnight before pressure cleaning off prior to coating. The product can be left on the roof without pressure cleaning if the roof is not being coated. It will take several weeks for moss/lichen and other biological growth to die.

#### **3.1.3 Minimise Cleaning Mess**

Check for internal vents and fans in the ceiling. By temporarily placing newspaper over these vents inside the roof space, the risk of mess and damage due to dirty water during high pressure water cleaning is minimised. The light water spray which results inside a tile roof space during high pressure water cleaning should not cause any damage and is similar to a rain storm effect.

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**Warning:** If the roof is connected to a water tank used as a domestic water supply for humans or animals it is important to disconnect supply pipes from the roof before chemical treatment, water cleaning or re-coating. This prevents discoloration or foaming of tank water supplies. After cleaning/coating the roof do not reconnect the water tank until after a minimum of three moderate rains have removed any excess product or overspray from the roof. If water is only for gardens or livestock gutters can be left connected.

Water for human consumption may be collected from roofs coated with SmartCoat, Nuflex, Tileflex, NXT Cool Zone, Waterproof Membrane, Accopol 847 and Terra-Glaze combined with any of the appropriate primer or sealer systems.

Ensure that parked cars are moved, clothes taken off nearby clothes lines. Also take note of sky lights, flashings, acrylic and laser light type roofing that might be damaged by high pressure water cleaning and spray applied coatings.

### 3.1.4 Pressure Water Cleaning

Clean the roof using a high-pressure water cleaner. A water cleaner operating at a minimum of 2000 Psi is recommended. Care must be taken to avoid using excessive water to minimise the possibility of damage. Precautions should be taken to avoid blasting dirty water over adjacent buildings, clothes lines and cars.

All dirt, moss, lichen, mould and pollution must be completely removed during this process. Using a turbo cleaning head on the cleaning machine nozzle will reduce water damage and potentially speed up the cleaning process.

### 3.1.5 Repair Pointing, Flashing and Capping

On tile roofs repair the bedding and pointing of all capping tiles and replace any damaged or badly rusted valley irons. Carefully inspect the tile battens and roof timbers to ensure the structure is sound. Replace or repair any damaged materials.

Remove loose capping tiles and re-bed in new cement mortar. A suitable mortar mix is:

- one-part builders cement, one-part lime and six parts fatty brick sand

Mix with water until these ingredients are a uniform colour and consistency. To improve the adhesion and strength use one-part **Nu-Bond** to four parts water in the bedding mix.

Alternatively use Nutech Mortalite a light weight easy to use bedding mix. Just add water and drill mix.

After the bedding is sufficiently cured replace all damaged tile cement pointing.

The best method of pointing is to use Nutech **Maxi-Point**. This flexible acrylic modified pointing mix is applied at a maximum thickness of 3-5 mm thick. Mixing a small amount of builder's cement in the product or spraying the surface with **Maxi-Point Accelerant** in cold and wet weather will speed up the curing process and prevent moisture damage. Refer to product information for detailed instructions.

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## 3.2 Stage 2 - Coating Selection & Application

### 3.2.1 Coating Selection

The initial selection criteria is based on the following main roof construction types;

<u>Roof Type</u>		<u>Primer/Sealer</u>	<u>Top Coat System</u>
Cement Tiles	- Powdery oxidized	Supa-Prime/Nuprime	SmarCoat, Nuflex, TileFlex, NXT
	- Stable smooth	Master sealer	SmartCoat, Nuflex, TileFlex, NXT
	- Stable rough	GP Primer	SmartCoat, Nuflex, TileFlex, NXT
Terra Cotta	- Glazed & semi glazed	n/a	Aqua Stop Silicon Sealer
		Elite Terracotta Primer	SmarCoat, Nuflex, TileFlex, NXT
Metal Tiles	- Porous, unglazed	n/a	Terra Glaze
	- Bitumastic Type	GP Primer	SmartCoat, MattNuflex, TileFlex, NXT Cool Zone
	- Decramastic Type	GP Primer	SmartCoat, MattNuflex, TileFlex, NXT Cool Zone
Timber Shingles		Deck Wash	Shingle Coat
Asbestos Sheet		Asbestos Sealer	Flexible Membrane, SmartCoat, Nuflex, TileFlex, NXT
Cement Sheet		Supa-Prime/Nuprime	SmartCoat, Nuflex, TileFlex, NXT
Metal Sheet		Metal Primer	SmartCoat, Nuflex, TileFlex, NXT
Concrete Slab		Nuprime	Flexible Membrane, NuCourt

**It is important to determine the condition of the surface. e.g;**

Is a cement tile surface unstable with a powdery oxidised surface or is it very rough and pitted?

Is an old brittle handmade cement tile suitable for restoration or will it leak more after cleaning and coating?

Is a metal roof corroded and rusty or just very dirty?

Is a terra cotta tile unglazed and vitrified (not porous) or unglazed and not vitrified (porous)?

Does a concrete slab require joint treatment and water proofing or the coating only decorative?

These and many other questions can only be answered with a careful inspection of each roof.

### 3.2.2 Primers & Sealers

Apply one coat of primer or sealer having regard to the surface conditions. Refer to the above guide and the following Sections to choose the appropriate primer or sealer system.

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When restoring cement tiles spray the tile nose first and ensure complete coverage. It is important that the tile pointing is fully cured before any coating is applied.

Always allow sufficient time between coats. The longer the drying time, the better the finish. In cold weather curing may take many hours, although at 25 Degrees the coating will normally dry in 30-60 minutes. Do not apply coating under 10 Degrees and avoid overspray when spraying. Do not apply in high wind conditions.

Fiberglass roof sheeting, skylights and newly painted guttering and spouting must be masked to avoid overspray.

If Waterproof Membrane is used as the prime coat additional curing time will be required due to the increased coating thickness. If Metal primer is used ensure that the topcoat is applied within three to four days to achieve maximum inter-coat adhesion.

It is important to ensure that the primer or sealer is adequately cured before top coating. In winter and cold temperatures, top coating on the same day can lead to problems, particularly on non-porous surfaces such as metal and previously coated roofs. Problems including blisters, wrinkling, blushing and delamination can result when topcoat systems are applied too soon. Check with Product Data Sheets and your Nutech Specialist for additional advice.

## 3.2.3 Top Coat Systems

In most situations Nutech recommends two (2) topcoats applied at approximately 4 square metres per litre per coat. This provides a wet paint film thickness of 500 microns (0.5 mm) and a dry film thickness of between 180 – 300 microns.

Always ensure that the primer is adequately cured before each new coat is applied. If multiple coats are applied without adequate curing the potential for moisture damage due to rain, mist or even heavy dew is dramatically increased.

Applying the final coat in low or high temperatures may reduce coating gloss and affect the coating adhesion and other important properties.

## 4.0 Which Coating Is Best for My Roof?

The most common types of roofs are discussed in more detail below;

### 4.1 Old Tiles, Hand and Machine Made, Poor Cement Compaction

Due to loose compaction and poor original coating thickness and quality these tiles absorb large amounts of water and will break easily. Re-roofing may be required if the tiles are not restored at some stage as the tiles become more damaged and brittle as time progresses.

The tiles are very rough and will require sealing prior to coating. Two top coatings may not provide a glossy consistent appearance.

Seal these tiles with GP Primer and topcoat with a minimum of two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.



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## **4.2 Old Tiles, Machine Made, Well Compacted Cement Surface**

Due to the solid construction of these tiles they are generally quite strong and are very suitable for restoration. Examples of these tiles include headlocks and bungalows.

These tiles are usually very rough after cleaning and will require sealing and at least two topcoats to achieve an even glossy finish.

Seal these tiles with GP Primer and topcoat with a minimum of two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

## **4.3 Tiles Around 20 Years Old - Machine Made, Well Compacted, Cement with a Powdery Oxidised Surface**

These tiles are generally very strong and the concrete base will last a lifetime. They are the most common type of tiles in use today and they are difficult to coat because they usually have a very unstable powdery oxidized surface.

These tiles must be primed with a penetrating coating which is saturation applied to bind the powdery surface to the tile and prevent coating de-lamination. It is very important to apply a thick coating to guarantee adhesion and ensure a durable finish. Mist coating these tiles always ends in disappointment.

In hot weather, it is recommended that the tiles be sprayed with cold water before priming to cool the surface and assist the primer to penetrate into the surface. Mist spraying a primer on a hot day will result in coating failure.

Prime these tiles with one coat of Supa-Prime or Nu-Prime and two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

## **4.4 New Tiles up to Five Years old - Sealed Glossy Surface**

These tiles have a smooth stable surface and often have the original clear factory applied finish coating. Due to the glossy surface coating adhesion is difficult to achieve.

Nutech has developed a special adhesion promoted primer for these tiles called GP Primer. It is recommended that these tiles are primed with GP Primer and top coated with two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

## **4.5 Metal Sheet Roofing**

After cleaning replace badly rusted sheeting, carefully checking overlaps and joints. Remove scale from the surface rust areas using a wire brush or corrugated wire broom. Tighten all fixing screws and check flashings. Apply Nu EcoSafe Strip Rust Converter with a brush to neutralise the surface rust.

Do not apply coating on a hot surface. A surface temperature in excess of 30 degrees Celsius will damage the coating and affect surface adhesion.

Apply one coat of Anti-Corrosion Metal Primer followed by two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

Allow adequate time for the metal primer to fully cure before top coating, particularly in cold and wet weather periods. If the primer fails to fully cure wrinkled and damage to the coating may result.

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**Warning:** Nu Ecosafe Strip Rust Converter is a very mild acid solution and should be handled carefully avoiding contact with skin or clothes

## 4.6 Asbestos and Cement Sheet Roofing

To remove moss, lichen and mould apply one saturation coat of Hypo using a watering can or backpack sprayer. Saturate the surface and leave for a minimum of one hour. If possible, leave for 24 hours before cleaning the asbestos surface using low water pressure.

**High pressure cleaning of asbestos surfaces or the use of mechanical equipment is not allowed by regulations. Unless the equipment is controlled and does not allow asbestos dust to become airborne and enter the atmosphere.**

**Pre-treatment with Nutech Hypo or Nu-EcoSafe MossRid is recommended.**

**low pressure water washing only, is recommended to avoid asbestos dust becoming airborne.**

Cement sheeting may be cleaned with a high-pressure water blaster.

**Warning:** Hypo is a strong alkaline Chlorine solution. Avoid contact with skin and clothing and avoid breathing vapours. Hypo may also make the surface slippery so care must be taken walking on the roof. Do not apply Hypo with airless spray equipment as equipment damage or personal injury may result.

Unstable fibrous asbestos surfaces require priming with one coat of Asbestos Sealer to bind the surface. On surfaces in very poor condition apply one coat of Flexible Membrane (available in clear base or coloured). Top coat with one or two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

On stable cement sheet surfaces apply one coat of Supa-Prime or Nu-Prime and two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone.

## 4.7 Terra Cotta Tiles

To remove moss, lichen and mould apply one saturation coat of Hypo using a watering can or backpack sprayer. Saturate the surface and leave for a minimum of one hour. If possible leave for 24 hours before cleaning the surface using high pressure water.

Check the surface porosity using a water droplet test. If the water drop is immediately absorbed the tile is porous and suitable for glazing with Terra Glaze. To obtain a high gloss finish, apply two coats of Terra-Glaze on porous unglazed and unglazed terra cotta tiles. Coating of glazed and vitrified non-porous surfaces with Terra-Glaze is not recommended. To waterproof all types of terra cotta tiles without affecting the surface appearance apply two saturation coats of Aqua Stop Silicon Sealer. This product is fully absorbed into the surface and does not leave a glossy finish.

Previously, Terracotta Tiles were not able to be coated with conventional Roof Coatings. That has all changed since Nutech Paint developed Elite Terracotta prime H2O designed for Terracotta roof tiles even fully glazed Terracotta roof tiles can be coated.

Elite Terracotta Prime H2O is a water based solvent free primer specifically developed with adhesion enhancing properties on metals, non-porous, dense and smooth substrates. It is designed for use on both vertical and horizontal surfaces, achieving high adhesion without the need for etching or using solvents. Ideally suited for the application under Nutech roof coatings. Nutech full warranties apply with Elite Terracotta prime H2O top coated with Nutech roof coatings.

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## 4.8 Concrete Slab Roofing

Clean the surface using high pressure water. Apply one coat of Nu-Prime or Supa-prime followed by two coats of Smartcoat, Nuflex, Tileflex or NXT Cool Zone.

To waterproof leaking joints apply reinforcing and Waterproof Membrane in accordance with Nutech product guidelines. Reinforcing mesh is incorporated for strong jointing and to protect trafficable surfaces. Top coating with NuCourt provides a non-slip pedestrian suitable surface.

## 4.9 Existing Painted Surfaces

An existing painted surface can be re-coated with special preparation. If the existing coating has good adhesion, apply two coats of Smartcoat, Nuflex, Tileflex or NXT Cool Zone. Test for inter-coat adhesion before coating. If adhesion problems are likely (on an old enamel painted roof for example) apply one coat of GP Primer.

If the coating is flaking, remove loose coating by high pressure water cleaning and scraping as necessary. Apply one coat of Flexible Membrane followed by two coats of SmartCoat, Nuflex, Tileflex or NXT Cool Zone. It is important to remember that the adhesion of an original coating cannot be guaranteed in all circumstances. Therefore, it is impossible to provide a topcoat warranty under unknown adhesion conditions.

## 4.10 Timber Shingles and Sheeting

The process of restoring timber shingle and sheet roofs is very common in the USA and Canada. It involves high pressure cleaning, replacing curled and broken shingles, washing down with Shingle Prep (optional cleaner to reduce graying effect on timber) and applying a protective coating. If the appearance of the shingles is uneven apply one coat of Nano Tinted Primer

In general paints do not provide an economical service life. Sealing with a water based penetrating oil is the preferred practice. Apply one flood coat of Shingle Coat. This has a golden oil colour at 1 lt /4 sq.

Apply a 2nd lighter coat of Shingle Wash at 1 lt/8 sq.m.

## 5.0 Nutech Roof Coatings

Pure acrylic coatings offer the greatest resistance to ultra violet light radiation from sunlight and are generally superior to other single pack copolymers such as styrene acrylics, polyvinyl acetates (PVA & vinyl) and vinyl acrylics. Pigments used in these coatings should be manufactured from high quality light fast oxides such as German "Bayer FerroX" oxides.

Traditionally solvent based coatings were used to restore roofs. Today modern water based polymers are significantly superior and offer many advantages including added film build, improved durability, environmentally friendly and easier water wash up.

## 5.1 Nutech Acrylic Sealers and Primers

The condition of the tile or roof surface after cleaning will determine the most suitable sealer. The following products are recommended:

### Supa-Prime

Superior penetrative primer for powdery oxidised surfaces

### Nu-Prime

Thin clear penetrative primer for powdery oxidised surfaces

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<b>Master Sealer</b>	Thick clear 100% Acrylic Sealer for smooth stable and porous surfaces
<b>GP Primer</b>	Thick Light Grey Acrylic adhesion promoted primer for rough and smooth glossy surfaces
<b>Metal Primer</b>	Light grey anti corrosion acrylic coating Clear milky acrylic alkaline curing coating
<b>Elite Terracotta Prime</b>	Water based solvent free primer for vertical and horizontal surfaces.

These primers and sealers resist attack from moss, lichen and bacteria growth.

Sealing and priming a roof should not be carried out when the tile surface temperature is outside the range of 10 degrees to 30 degrees Celsius. In very hot weather the surface may be cooled with a water mist to assist penetration and adhesion.

## 5.2 Nutech Acrylic Finish Coat Systems

The following products provide excellent water and alkali resistance and guarantee excellent gloss retention, hardness, flexibility, adhesion and weathering properties.

<b>SmartCoat</b>	Premium 100% acrylic gloss coating
<b>Nuflex®</b>	Premium 100% acrylic gloss coating
<b>Tileflex®</b>	Premium 100% acrylic coating enhanced with Surface Cleaning Nano-Technology for superior waterproof protection, dirt resistance and gloss
<b>NXT Cool Zone®</b>	Premium 100% acrylic coating, Heat Reflective coating with thermal protection technology
<b>Flexible Membrane</b>	A very flexible elastomeric low sheen waterproof acrylic membrane

Because water based acrylic coatings are water soluble you must ensure that weather conditions are favorable. Rain, moisture or dew contacting the coating before drying is complete will cause damage and reduce gloss. In colder weather, it is advisable to complete spraying before early afternoon. As temperatures drop below 10 degrees Celsius in late afternoon the coating will not form a film and may be damaged by rain or dew. Condensation can also form on roofs with surface temperatures even up to 22 degrees Celsius subject to ambient air temperature and relative humidity. This can lead to damage if the coating is not cured completely.

Over coating an uncured coating too early is a common cause of adhesion loss and coating failure. Independent curing of each coat is a critical requirement, particularly in cold weather.

## 5.3 Terracotta Tile Coatings (Clear Gloss and Natural Finish)

Water based acrylic clear coatings are not recommended for terra cotta tiles, particularly glazed, semi glazed and highly vitrified tiles. The most technically advanced coating developed by Nutech for terra cotta tiles is;

<b>Terra Glaze</b>	Oil based alkyd coating for terra cotta tiles
<b>Silicon Sealer</b>	Solvent based Siloxane silicon liquid water proofing treatment
<b>Aqua Stop Silicon Sealer</b>	Water based Siloxane silicon liquid water proofing treatment

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Terra-Glaze is available as a clear glaze. Terra-Glaze is a high solids coating containing premium quality ultra violet light absorbers and stabilisers to improve the durability and clarity of the coating and silicon modifiers to improve adhesion.

Terra-Glaze is not recommended for semi glazed, glazed and non-porous vitrified tiles.

## **6.0 Brief Technical Overview of The Weathering Effect On Cement Roof Tiles (Source: - Ivan Marovitch & Assoc. Pty Ltd - Structural Engineers)**

*"Under reasonable or ideal conditions, the strength and water tightness of cement roof tiles improves with age. However, a roof is subjected to a number of aggressive elements that can attack the surface coating and concrete. These elements include;*

- *By-products from industrialised and populated cities deposited on tiles as acid rain including hydrochloric, hydrofluoric, sulphuric and nitric acids.*
- *Seawater spray which includes acid, chlorides and sulphates.*
- *Frost and freeze/thaw cycles.*
- *The expansion and contraction of moss and lichen attached to the surface.*

*The rate of attack on the cement component of the tile is dependent on;*

- *The cements substrate and porosity (density) of the tile at the time of manufacture.*
- *The severity and persistence of the aggressive elements; and*
- *The condition of the seal coating on the tile.*

*To protect cement tiles and provide an aesthetic appearance, they are manufactured with a seal coating which provides a good barrier against attack. It is important that this coating is maintained.*

*In general, maintenance of a surface barrier or sealer on the tile can extend the life of the tile. Once the surface barrier or sealer is penetrated or lost, the cement will most likely begin to weather and damage may result.*

*This is particularly true for older handmade and machine-made tiles with low cement density. Once the coating is penetrated the tile will become permeable to water and aggressive elements at a progressively increasing rate.*

*Therefore, it is very important that the best quality pigmented coating/sealant is maintained on a tile, not only to improve the aesthetic appearance of a roof, but also to protect the cement tile."*

## **7.0 Nutech Product Warranty**

In most cases new roofs and roof tiles remain structurally sound for many years, even after the protective coating has been lost. However, old tiles manufactured by hand or inferior quality and porous materials will degrade with age unless a protective surface coating is maintained.

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Re-roofing is normally not necessary as restoration of a protective and decorative coating is a relatively simple and durable process if these guidelines are observed.

Provided quality Nutech products are used, the success of the restoration is entirely dependent on the degree of preparation carried out. It is important to keep in mind that without adequate preparation the life of the applied coating will be reduced.

If the roof has been correctly prepared and coated, it will provide many years of service, improving both the appearance of the building and the protective function of the roof.

Nutech is very confident of the quality and durability of its roofing products. Subject to correct surface preparation, application and product selection Nutech offers a warranty on all roofing products it manufactures.

Nutech prides itself on its level of customer service and product quality. We are confident that you will be totally satisfied with all our products.